

9/30/05 Amendments to the Specification
See page 3 for correction

First Named Inventor: William J. Swanson

Application No.: 10/723,762

-2-

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph at page 1, lines 3-7 with the following paragraph:

This application is a divisional of application serial no. 10/018,673, filed December 31, 2001, now U.S. Patent No. 6,722,872, which is hereby incorporated by reference as if set forth fully herein, and which is a U.S. national stage application of PCT International Application no. US00/17363 filed June 23, 2000, which claims priority to provisional application serial no. 60/140,613, filed June 23, 1999.

Please replace the paragraph at page 9, lines 8-19 with the following paragraph:

The extrusion head 14 is moved in an x,y plane above the platform 16 by the x-y gantry 18, which is mounted on top of the oven 12. As shown in Figure 2, the extrusion head 14 has an inlet 61 for receiving modeling material and an outlet nozzle 66 for dispensing the modeling material onto the platform 16 in a flowable state. The nozzle outlet 66 will typically be heated so as to deposit the modeling material at a predetermined temperature. The extrusion head nozzle 66 is located inside of the build chamber 24. In the preferred embodiment, the extrusion head inlet 61 is located external to the build chamber 24. Hence, the extrusion head 14 extends through the top of the oven 12. Because the extrusion head 14 of the preferred embodiment must be allowed to move in the x,y plane, the top of the oven 12 is formed of a deformable thermal insulator, which is described in detail below.

Please replace the paragraph at page 10, lines 4-12 with the following paragraph:

The y-rails 70 are mounted to the underside of the bridge 65 on opposite sides of the open center portion thereof. The y-rails 70 run parallel to each other in the y-direction. The carriage 72 is coupled to the y-rails 70 by two opposed pairs of bearings 84. The carriage 72, seated on the y-rails 70, is positioned in the open center portion of the bridge 65. The extrusion head 14 is mounted to the carriage 72, so that movement of the carriage 72 along the y-rails 70 moves the extrusion head 14 in the y-direction. The extrusion head 14 is mounted in the carriage 72 such that the extrusion head inlet 61 is above the bridge 65 and the extrusion head nozzle 66 is below the bridge 65.

8-22 MSO 7/5/07

Please replace the paragraph at page 12, lines ~~4-12~~ with the following paragraph:

The apparatus 10 builds three-dimensional objects by depositing modeling material layer-by-layer from the extrusion head 14 onto the platform 16 under the control of a controller 140. The material is deposited in a fluent state and fuses to the previously deposited material. The controller 140 receives CAD data 142 defining an object to be built and generates drive signals based upon this data, in a known manner, as illustrated schematically in Figure 1. The drive signals are sent to the x-motor 74, the y-motor 76 and the z-motor 40, to control movement of the extrusion head 14 and platform 16. Also as illustrated in Figure 1, in synchrony with controlling movement of the extrusion head 14 and the platform 16, the controller 140 generates drive signals to control an extrusion pump 144. The extrusion pump 144 responsively feeds modeling material from a material supply 146 to the inlet 61 of extrusion head 14, and controls the rate of extrusion of the material from the nozzle 66. By controlling the rate of extrusion while moving the extrusion head 14 over the platform 16 in a pattern determined by the CAD data, a three-dimensional object which resembles a CAD model is created.